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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/161,770	09/29/1998	JAMES PHILIP ANDREW	169.0976	8025

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EXAMINER

DANG, DUY M

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 02/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/161,770

Applicant(s)

Andrew

Examiner

Dang L.

Group Art Unit

2621

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☐ Responsive to communication(s) filed on _____.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-16, 18-36, 38-80, and 91-120 is/are pending in the application.
Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-16, 18, 19-36, 38, 39-80, and 91-120 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 10-14 ☐ Interview Summary, PTO-413
- ☒ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other _____

Office Action Summary

DETAILED ACTION

1. Applicant's preliminary amendments filed 9/29/98 has been entered.
2. Applicant is informed that claims 17, 37, and 81-90 are not present in the application.

Appropriate correction is required.

3. Claims 66 and 92 are objected because of the following informalities:

In claim 66, line 1, recites "A method as claimed in claim 66".

In claim 92, line 1, recited "An apparatus as claimed in claim 92".

Appropriate correction is required.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-16, 18-36, 38-80, and 91-120 are rejected under 35 U.S.C. 102(e) as being anticipated by Boliek et al. (U.S. Patent No. 6,141,446).

Regards claims 1, and 21, Boliek teaches a method and an apparatus for compressing data (see col. 4, lines 35-37; and figure 2) comprising:

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applying a transform to the data to produce transformed data having a series of parts (see the “wavelet transform” shown at 202 of figure 2 and mentioned at col. 9, lines 65 to col. 10, line 2. Also note that “a series of coefficients” mentioned at line 1 of column 10 satisfies the so-called “a series of parts”);

entropy encoding (see “entropy coding” shown at 206 of figure 2 and mentioned at col. 10, lines 24-25) the magnitude of the transformed data of at least one of said parts (i.e., in Boliek, the “bit-significant” mentioned at col. 5, lines 58-62 and col. 19, lines 55-56 satisfies the so called “the magnitude of the transformed data of at least one of said parts”) based on the magnitude of the surrounding transformed data (see figure 13. Note that “NW”, “N”, “NE”, ..., “SE” all refer to the so called “the magnitude of the surrounding transformed data”); and

separately encoding the value of said transformed data (see item 204 (binary style coding) of figure 2; col. 24, lines 18-19. Note that the “coefficient” mentioned at line 18 satisfies the so called “value”).

Regarding claims 11, and 31, Boliek further teaches a method and an apparatus for decompressing data (see col. 4, lines 35-37; and col. 9, lines 42-43).

Regarding claims 41-42, Boliek further a computer program product (see col. 5, lines 13-15) including a computer readable medium (col. 5, line 16) having recorded thereon a computer program (see col. 4, lines 14-15) for compressing/decompressing data (see col. 4, lines 35-37; and col. 9, lines 42-43).

Regards claims 43, 51, 75, and 93, Boliek teaches a method and an apparatus for compressing data (see col. 4, lines 35-37; and figure 2) comprising:

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a) applying a transform to the data to produce a plurality of transform coefficients (see the “wavelet transform” shown at 202 of figure 2 and mentioned at col. 9, lines 65 to col. 10, line 2. Also note that “a series of coefficients” mentioned at line 1 of column 10 satisfies the so-called “a plurality of transform coefficients”), wherein each transform coefficient is expressible by a code representation (see col. 9, lines 60-64. Note the “bit-significant representation” mentioned in line 61 of col. 9, lines 39-40 of col. 3, and shown at figure 12 corresponds to the so called “a code representation”) including a plurality of symbols (see col. 10, lines 24-25);

b) entropy encoding one of said symbols (see “entropy coding” shown at 206 of figure 2 and mentioned at col. 10, line 25), not previously entropy coded (see “P” shown in figure 13), of a current transform coefficient based on a context of surrounding symbols (see figure 13);

c) repeating step b) a predetermined number of times for the current coefficient (see items 2104 and 2110 of figure 21); and

d) processing another transform coefficient in accordance with steps b) and c) (see item 2110 of figure 21).

Regarding claims 59, 67, 101, and 109, Boliek further teaches a method and an apparatus for decompressing data (see col. 4, lines 35-37; and col. 9, lines 42-43).

Regarding claims 117-120, Boliek further a computer program product (see col. 5, lines 13-15) including a computer readable medium (col. 5, line 16) having recorded thereon a computer program (see col. 4, lines 14-15) for compressing/decompressing data (see col. 4, lines 35-37; and col. 9, lines 42-43).

Regarding claims 2-3, Boliek further teaches wherein said entropy encoding utilizes the number of non-zero coefficients surrounding a spatial location of a corresponding transformed

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data value (see figure 13 and col. 23, lines 1-9; figure 19 (note the “target” and “type A” and “type B” coefficients) and “entropy coding” 2108 of figure 21 . Note that the “P” coefficient shown at figure 13); and wherein the surrounding values utilized are previously encoded values adjacent to the current spatial location of the corresponding transformed data value (see figure 19. The “type A” and “type B” corresponding to the so called “surrounding value utilized are previous encoded values”, and the “target” corresponding to the so called “the current spatial location of the corresponding transformed data value”).

Regarding claims 4-10, 16, 18-20, 24-29, 36, and 38-40, Boliek further teaches: quantizing (see items 203 of figure 2; and figure 11); a sign bit (see figure 12) and a predetermined number of coefficient bits (see figure 11. Note that the number of “1, 2, 4, 8, and 16” corresponds to the so called “a predetermined number of coefficient bits”); wavelet transforming the data (see item 202 of figure 2; and col. 8, lines 36-40); each of subband components of the wavelet transform which are separately entropy encoded (see items 2111 and 2108 of figure 21); the lowest frequency subband component is separately encoded (see col. 22, lines 36-42.); wherein said data includes image data describing an image (see “image data 201” of figure 2 and col. 9, lines 35 and 48-50); and encoding the number of leading zeros in transformed data values (see figure 12 and item 206 of figure 2. Note that the “bit-significant representation” shown in figure 2 refers to the so-called “number of leading zeros”).

Regarding claims 12-13, 22-23, 30, and 32-33, Boliek further teaches entropy decoding (see item 2202 of figure 22) utilizes the number of non-zero coefficients surround a spatial location corresponding to a transformed data value (see figure 24. Note that: the coefficients

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“SD”, “DS”, “DD” refer to the so called “non-zero coefficients surrounding a spatial location corresponding to a transformed data value”).

Regarding claims 14-15, 34-35, 61, 69, 103, 111, Boliek further teaches: inverse quantizing transformed portion of said data (see col. 49, line 8); inverse wavelet transform (see col. 49, lines 10-20. Note that the “inverse vertical transform on SS and SD coefficients” mentioned in lines 11-16 and “inverse horizontal transform” mentioned in lines 18-20 refer to so called “inverse wavelet transform”).

Regarding claims 44-48, 52, 53, 60, 62, 64, 68, 76, 77, 78, 80, 94, 95, 102, 104, 106, 110, Boliek further teaches wherein said context of surrounding symbols is determined from previously encoded coefficients (see figure 13 and col. 23, lines 1-9); quantizing said transform coefficients (see item 203 of figure 2); wherein said predetermined number of times is consistent with an encoding of substantially all the symbols of the current transform coefficient (see item 2207 of figure 22).

Regarding claims 49-50, 54-55, 65-66, 70-71, 91-92, 96-97, 107-108, 112-113, Boliek further teaches a first flag and a second flag (see the “tags” mentioned col. 13, line 6 and col. 8, lines 11-14).

Regarding claims 56-58, 72, 73, 74, 98, 99, 100, 114-116, Boliek further teaches wherein said transform coefficients are represented in a bit-plane representation (see col. 9, lines 58-64) and surrounding bits are bits in a current bit-plane (see col. 5, lines 59-62); an arithmetic coder (see col. 5, lines 46-48); and discrete wavelet transform (see col. 8, lines 35-40).

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Regarding claims 63, 79, 105, refer to Boliek, figure 13. For example, the "target" refers to the so called "context" and is determined from "Type A" and "Type B" which refer to the so called "surrounding symbols".

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

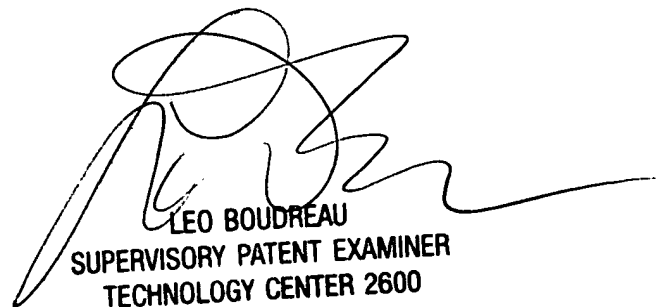
Horne et al. (US Patent No. 5,515,377), Tzou (US Patent No. 4,698,689), Haskell et al. (EP 634871A2), and Shimoda et al. (EP 517141A2) teach the same field of invention.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duy M Dang whose telephone number is 7033051464. The examiner can normally be reached on Monday-Thursday from 6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 7033054706. The fax phone numbers for the organization where this application or proceeding is assigned are 7038729314 all communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 7033060377.

dmd
2/5/02



LEO BOUDREAU
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